Ref. No.3547

# **ONKYO** SERVICE MANUAL

# SYNTHESIZED FM STEREO/AM TUNER MODEL T-4711

European model(FM STEREO TUNER)



#### Black, Silver and Golden models

BUDN,GUDN	120V, AC,60Hz
BUP,BUPB,BUPT,SUPT,SUPB,GUPT	230V AC,50Hz
BUWT,GUWT	120/220V AC, 50/60Hz

#### **SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY MARK A ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

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## SPECIFICATIONS

Tuning Range:

European and Worldwide models:

87.50 - 108.00 MHz (50 kHz steps)

USA and Canadian models:

87.90 - 107.90 MHz (200 kHz steps) Mono: 10.3 dBf 0.9µV, 75 Ohms IHF

Usable Sensitivity: 0.8uV, 75 Ohms DIN

Stereo:  $17.2 \text{ dBf } 2.0 \mu\text{V}$ , 75 Ohms IHF

20µV, 75 Ohms DIN

50 dB Quieting Senstivity: Mono: 16.1 dBf 1.7µV 75 Ohms

Stereo: 36.1 dBf 17µV 75 Ohms

Capture Ratio: Image Rejection Ratio: 1.3 dB 100 dB

IF Rejection Ratio:

100 dB

Signal-to-Noise Ratio:

Mono: 85 dB IHF

Stereo: 77 dB IHF

70 dB IHF (Narrow)

Selectivity:

70 dB DIN (±300 kHz, 40 kHz dev.)

AM Suppression Ratio:

50 dB

Total Harmonic Distortion: Mono: 0.1%

0.3% (Normal 40 kHz dev.)

Stereo: 0.2%

0,7% (Normal 40 kHz dev.)

Frequency Response:

30 - 15,000 Hz (+0.5, -1.0 dB)

Stereo Separation:

45 dB at 1 kHz

33 dB at 70 - 10,000 Hz

Output Voltage:

Muting Level:

17.2 dBf 2.0 µV, 75 Ohms

## **SERVICE PROCEDURES**

#### 1. Safety-check out

After correcting the original service problem, perform the following safety check before releasing the set to the customer.

Connect the insulating-resistance tester between the plug of power supply cord and chassis.

Specifications: More than  $10M\Omega$  at 500V.

#### 2.Memory Preservation

This unit does not require memory preservation batteries. A Built memory power back-up system proserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once io order to change the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month to keep the back-up system operative. the period of time during which memory contents are preserved after power has last been turned off varies depending on climat e and placement of the unit.

On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks ) after the last time power has been turned off. This period is shorter when the is exposed to very high humidity or used in an area with an extremely humid climate. AM

Tuning Range:

USA and Canadian models:

530 - 1710 kHz (10 kHz steps)

Asian models:

522 - 1611 kHz (9 kHz steps)

Worldwide models:

531 - 1602 kHz (9 kHz steps) 530 - 1710 kHz (10 kHz steps)

Usable Sensitivity:

25μ V 40 dB

Image Rejection Ratio: IF Rejection Ratio:

40 dB

Signal-to- Noise Ratio:

40 dB

Total Harmonic Distortion: 0.8%

Output Voltage:

250 mV

#### General

Power Supply:

USA and Canadian models:

AC 120V, 60Hz

European models: AC 230V, 50Hz

Worldwide models:

AC 120V and 220 - 230V switchable, 60/50 Hz

Dimensions (W × H × D):  $435 \times 91 \times 373$  mm

17-1/8" × 3-9/16" × 14-11/16"

Mass:

4.9 kg, 10.8 lbs.

Specifications and features are subject to change without notice.

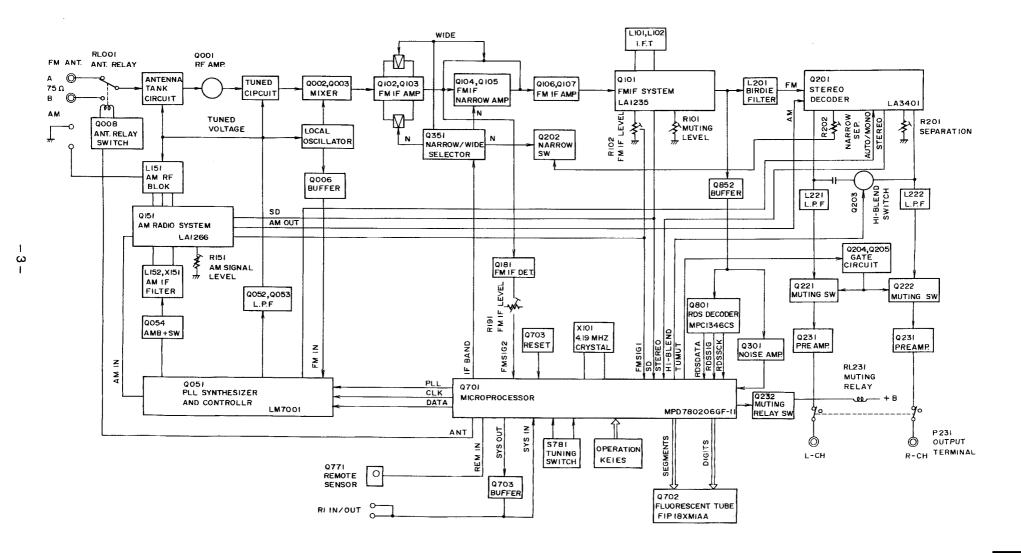
### 3. Changing the FM/AM band step

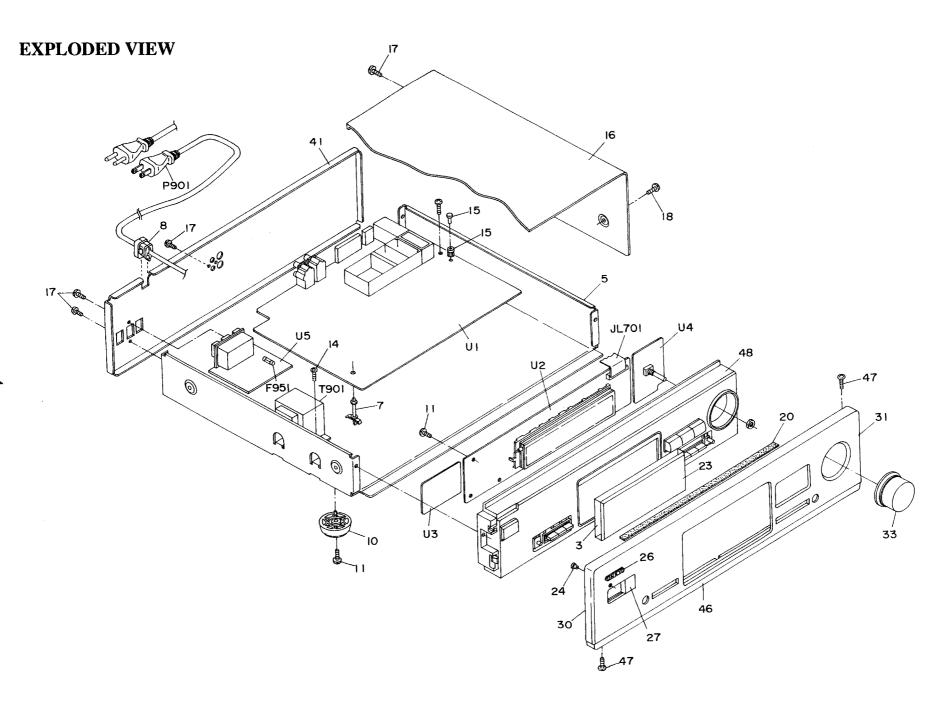
(Except European model)

When change the band step, refer the below table.

Band step	R704	R705
Other from USA	2.7k	390
USA from other	5.6k	3.3k

## **BLOCK DIAGRAM**





REF.NO.	PART NO.	DESCRIPTION
3	28133349-1	Back plate <b></b>
	28133345	Back plate <s g=""></s>
5	27100316A	Chassis
7	27190164	KGLS-14S,Holder
8	27300750 🛕	Cord bushing
10	27175311	Leg
11	838130088	3TTB+8B,Self-tappin screw
14	830440069	4TTC+6C(BC), Self-tapping screw
15	880009	NRP-345,Plastic rivet
16	28184642	Top cover <b></b>
	28184643	Top cover <s></s>
	28184644	Top cover <g></g>
17	838430088	3TTB+8B(BC),Self-tapping screw <b></b>
	838230088	3TTB+8B(Ni),Self-tapping screw <s g=""></s>
18	838440089	4TTC+8B(BC),Self-tapping screw <b></b>
	838240089	4TTC+8B(Ni),Self-tapping screw <s g=""></s>
20	28140837	Cushion
21	28141333	Cushion for flat cable
23	28191731A	Clear plate
24	28198839	Facel
26	28135243	Badge <b></b>
	28135242	Badge <s></s>
27	28191730	Clear plate RE
30	28125327A	End cap L <b></b>
	28125329A	End cap L <s></s>
	28125331A	End cap L <g></g>
31	28125328A	End cap R <b></b>
	28125330A	End cap R <s></s>
	28125332A	End cap R <g></g>
33	28325354	Knob, tuning <b></b>
	28325355	Knob, tuning <s></s>
	28325356	Knob, tuning <g></g>
41	27122180A	Rear panel <d></d>
	27122181A	Rear panel <p></p>
	27122182A	Rear panel <w></w>
46	27211785	Front panel <d t="" w=""></d>
	27211788	Front panel <p></p>
	27211786	Front panel <s></s>
	27211787	Front panel <g></g>
47	801525	3TTB+8B(BC),Self-tapping screw <d p=""></d>
48	27110937A	Front bracket <d t="" w=""></d>
	27110950A	Front bracket <p></p>
	27110938A	Front bracket <s></s>
	27110939A	Front bracket <g></g>

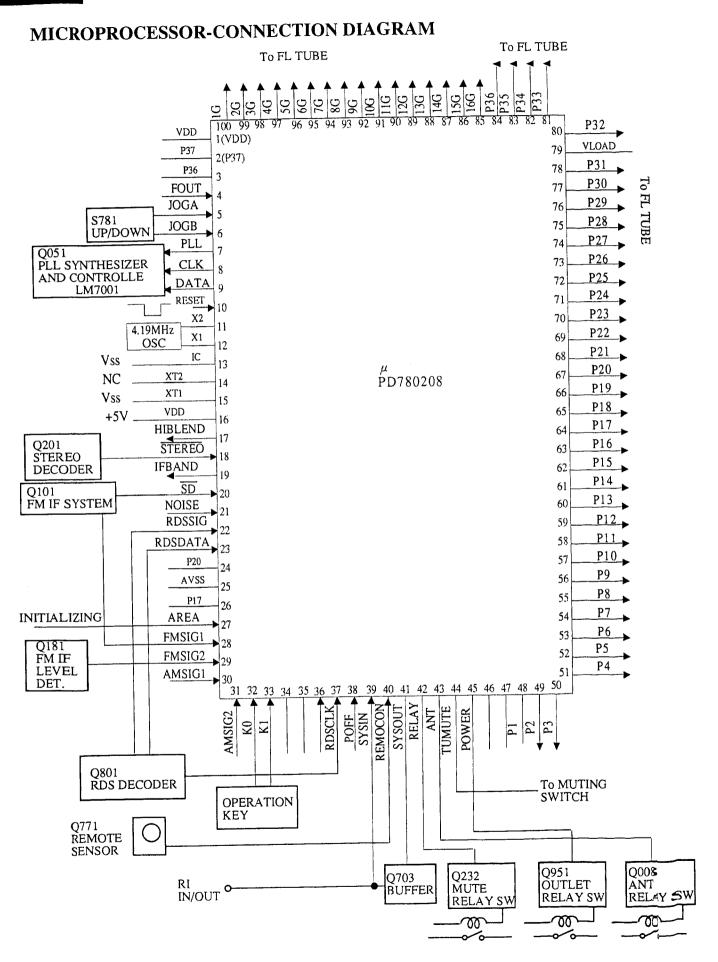
REF.NO.	PART NO.	DESCRIPTION
91	260208	Wire tie
92	28175224	Isolation plate <p></p>
93	880011	NRP-355, Plastic rivet <p></p>
94	25060044	3*14, Terminal GND <p></p>
95	87643010	W3x10F(BC), Washer <p></p>
F951	252077 🛆	4A-SE-EAK, Fuse <p></p>
JL701	2047302512	NCFC7-302512, Flat cable
P901	253192HIT △	AS-UC-6#18-(SPT-2), AC cord <d></d>
	253193HIT A	AS-CEE, AC cord <p></p>
	253198HIT A	AS-BS, AC cord <pb></pb>
	253233KAW 🚠	AS-CEE-2, AC cord <w></w>
T901	2301193	NPT-1270D, Power transformer <d></d>
	2301194 🛕	NPT-1270P, Power transformer <p></p>
	2301195 🛕	NPT-1270DG, Power transformer <w></w>
U1	1A685587-1A	NAAR-5787-1A, Main circuit pc board ass'y <p pb=""></p>
	1A685587-1B	NAAR-5787-1B, Main circuit pc board ass'y <t></t>
	1A685587-1C	NAAR-5787-1C, Main circuit pc board ass'y <w></w>
	1A685587-1D	NAAR-5787-1D, Main circuit pc board ass'y <d></d>
U2	1A685588-1A	NADG-5788-1A, Display circuit pc board ass'y <p b=""></p>
	1A685588-1B	NADG-5788-1B, Display circuit pc board ass'y <t></t>
	1A685588-1C	NADG-5788-1C, Display circuit pc board ass'y <w></w>
	1A685588-1D	NADG-5788-1D, Display circuit pc board ass'y <d></d>
U3	1A685589-1A	NAETC-5789-1A, Remote sensor pc board ass'y <p pb=""></p>
	1A685589-1B	NAETC-5789-1B, Remote sensor pc board ass'y <t></t>
	1A685589-1C	NAETC-5789-1C, Remote sensor pc board ass'y <w></w>
	1A685589-1D	NAETC-5789-1D, Remote sensor pc board ass'y <d></d>
U4	1A685590-1A	NASW-5790-1A, Tuning switch pc board ass'y <p pb=""></p>
	1A685590-1B	NASW-5790-1B, Tuning switch pc board ass'y <t></t>
	1A685590-1C	NASW-5790-1C, Tuning switch pc board ass'y <w></w>
	1A685590-1D	NASW-5790-1D, Tuning switch pc board ass'y <d></d>
U5	1A685591-1A	NAPS-5791-1A, Primary circuit pc board ass'y <p pb=""></p>
	1A685591-1B	NAPS-5791-1B, Primary circuit pc board ass'y <t></t>
	1A685591-1C	NAPS-5791-1C, Primary circuit pc board ass'y <w></w>
	1A685591-1D	NAPS-5791-1D, Primary circuit pc board ass'y <d></d>
U6	1A685528-1C	NASW-5828-1C, Voltage selector pc board ass'y <w></w>
NOTE	E: <d>: 120V mode</d>	lonly
	<p>: 230V model</p>	•

NOTE: <D>: 120V model only <P>: 230V model only <PB>: U.K model only <W>: Wolrdwide model only <T>:Taiwanease model only <B>: Black model only

<B>: Black model only
<S>: Silver model only
<G>: Golden model only

NOTE: THE COMPONENTS INENTIFIED BY MARK

ARE CRITICAL FOR RISK OF FIRE AND
ELECTRIC SHOCK. REPLACE ONLY WITH
PART NUMBER SPECIFIED.



# MICROPROCESSOR-TERMINAL DESCRIPTION

Pin No.	Terminal	Description
1	VDD	Power supply terminal (+5V)
2	P37	Not used
3	P36/BUZ	Not used
4	FOUT	Clock output terminal for frequency adjustment
5	JOGA	Jog dial connection terminal
6	JOGB	Jog dial connection terminal
7	PLL	Connect to the terminal PLL of PLL IC LM7001.
8	CLK	Connect to the terminal CL of PLL IC LM7001.
9	DATA	Connect to the terminal DATA of PLL IC LM7001.
10	RESET	Reset input terminal
11	X2	Crystal resonator connection terminal
12	X1	Connect the 4.19 MHz crystal resonator.
13	IC	Internal connection terminal
14	XT2	Not used
15	PO4/XT1	Not used
16	VDD	Power supply terminal (+5V)
17	HIBLEND	Hi-blend control output terminal
18	STEREO	Stereo broadcast detection input
19	IFBAND	IF band control output terminal
20	SD	Station detection input terminal
21	NOISE	Noise detection input terminal
22	RDSSIG	RDS signal input terminal
23	RDSDATA	RDS data input from RDS decoder
24	P20/S11	Not used
25	AVSS	Power supply terminal for A/D converter
26	P17/ANI7	Not used
27	AREA	Initializing input for FM/AM band area
28	FMSIG1	Signal strength detection input
29	FMSIG2	Signal strength detection input
30	AMSIG1	Not used
31	AMSIG2	Not used
32	К0	Operation key connection terminal pin
33	K1	Operation key connection terminal pin
34	AVDD	Power supply terminal for A/D converter
35	AVREF	Reference voltage for A/D converter
36	RDSCLK	RDS clock input terminal for RDS decoder

Pin No.	Terminal	Description
37	POFF	Current stoppage detection input terminal
38	SYSIN	System code input terminal
39	REMOCON	Remote control signal input terminal
40	Vss	Ground terminal
41	SYSOUT	System code output terminal
42	RELAY	AC outlet control terminal
43	ANT	Antenna selector output terminal
44	TUMUTE	Muting control output terminal
45	POWER	Power control output terminal
46	VDD	Power supply terminal (+5V)
47	P127/FIP52	Not used
48-78	P1~P31	Segment output terminals
79	-VP	Power supply for FL tube
80~84	P32 <sup>-</sup> P36	Segment output terminals
85~100	16G~1G	Grid output terminals

## Initializing

R704	R705	Region	FM	AM
3.3k	5.6k	Europe	87.50-108.00MHz(50k/25k)	522-1611kHz(9k)
10k		Worldwide	87.50-108.00MHz(50k/25k)	531-1602kHz(9k)
5.6k	3.3k	U.S.A	87.9-107.9MHz(200k/25k)	530-1710kHz(10k)

## ADJUSTMENT PROCEDURES

Preparation

1. Input

FM mono: 1kHz, 40kHz devi.,  $60dB/\mu V$ 

(European model)

1kHz, 75kHz devi.,  $60dB/\mu V$ 

(Other model)

FM stereo: 1kHz, 36kHz devi.,  $60dB/\mu$  V

Pilot signal 19kHz 4kHz devi.

(European model)

1kHz, 67.5kHz devi.,  $60dB/\mu$  V

Pilot signal 19kHz 7.5kHz devi.

(Other model)

AM: 400Hz, 30% mod.

1. Set the operation switches to the below position.

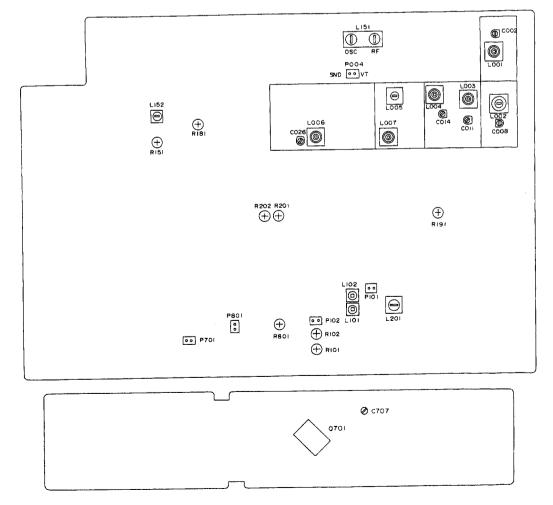
Antenna.....A, IF Band.....Normal, Hi-Blend....Off, Mode....Auto, Fine....Light on

2. Hold down MEMORY key and press the STAND-BY/ON key before FM adjustment to be the unit to the test mode.

#### **CLOCK FREQUENCY ADJUSTMENT**

Connect the frequency counter to test terminal P701.

Adjust trimmer capacitor C707 so that the reading of frequency counter becomes  $524,288 \pm 1$ Hz.



## FM ADJUSTMENT

230V and Worldwide models

$\neg \top$			Connection	FM SG	Stereo	Tuned	Output	Adjustment	Adjust	
	Item	Step			Modulator					Remarks
1		-	of instrument	output	output	frequency	indicator	point	for	
	Tuned	1	Connect the DC voltmeter			87.50 MHz (1 ch.)	DC	L006	6.5±0.2 V	(1 ch.): Channel of PRESET key
1		2	to the test point P004.			108.00 MHz (5 ch.)		C026	24.0±0.4 V	Repeat the steps 2 and 3 until
	Voltage	3				87.50 MHz	voltmeter	L006	4.0±0.2 V	no further adjustment is necessary.
$\top$		1	Connect the FM signal	108.00 MHz		108.00 MHz		C002,C008	Maximum	
	Tracking		generator to Antenna	$20~\mathrm{dB}\mu$			DC	C011,C014		Repeat the steps 1 and 2 until
2		2	terminal A.	87.50 MHz		87.50 MHz	-	L001,L002	Maximum	no further adjustment is necessary.
				20 dB μ			voltmeter	L003,L004		
	Adjust.	3	Connect the DC voltmeter	108.00 MHz		100.80 MHz		L005	Maximum	
			to the test point P102.	20 dB μ				L007		
$\top$		1	Connect the FM signal	99.00 MHz			Signal	R102	50 dB	Press the DISPLAY key more than
3	Signal		generator to Antenna	$50~\mathrm{dB}\mu$		99.00 MHz				1 sec. (Signal meter indication)
	Meter	2	terminal A.	99.00 MHz		(3 ch.)	Meter	R191	99 dB	After adjustment, press the
			(No modulation)	99 dB μ						DISPLAY key (Frequency indication)
4		1	Connect the DC voltmeter				DC	L101	0±5 mV	
1	FM		to test point P101	99.00 MHz		99.00 MHz	voltmeter			Repeat the steps 1 and 2 until
	IF	2	and the distortion	$60\mathrm{dB}\mu$		(3 ch.)	Distortion	L102	Minimum	no further adjustment is necessary.
l			analyzer to output terminal.				analyzer			
5	Muting		Connect the oscilloscope	99.00 MHz					Appear the	
	level		to the output terminal.	18 dB μ		99.00 MHz	Oscilloscope	R101	signal on the	
			-	22.5 kHz devi.					oscilloscope.	
	Stereo		Connect the oscilloscope	99.00 MHz	40kHz				Maximum	IF BAND: NORMAL
6	Sepa-		to the output terminal.	$60  \mathrm{dB}  \mu$	devi.	99.00 MHz	Oscilloscope	R201	Separatin	
	ration			Ext. mode	Pilot signal				Maximum	IF BAND:NARROW
					4kHz devi.			R202	Separation	
			Connect the oscilloscope to	99.00 MHz	57 kHz					
7	RDS			60 dB μ	3% devi. or	99.00 MHz	Oscilloscope	R801	Maximum	
			the test point P801.	Ext. mode	RDS data					
		1			signal					

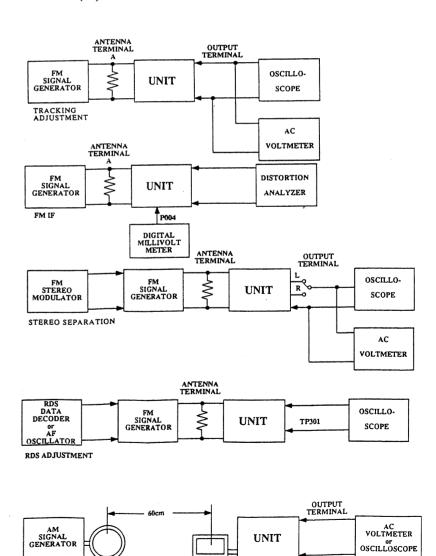
120V models

	v moders	T	Connection	FM SG	Stereo	Tuned	Output	Adjustment	Adjust	
	Item	Step			Modulator					Remarks
		-	of instrument	output	output	frequency	indicator	point	for	
	Tuned	1	Connect the DC volumeter			87.90 MHz (1 ch.)	DC	L006	6.5±0.2 V	(1 ch.): Channel of PRESET key
1		2	to the test point P004.			107.90 MHz (5 ch.)		C026	24.0±0.4 V	Repeat the steps 2 and 3 until
	Voltage	3				87.90 MHz	voltmeter	L006	4.0±0.2 V	no further adjustment is necessary.
		1	Connect the FM signal	107.9 MHz		107.90 MHz		C002,C008	Maximum	
	Tracking		generator to Antenna	20 dB μ			DC	C011,C014		Repeat the steps 1 and 2 until
2		2	terminal A.	87.9 MHz		87.90 MHz		L001,L002	Maximum	no further adjustment is necessary.
				20 dB μ			voltmeter	L003,L004		
	Adjust.	3	Connect the DC volumeter	107.90 MHz		107.90 MHz		L005	Maximum	
		l	to the test point P102.	20 dB μ				L007		
		1	Connect the FM signal	99.10 MHz			Signal	R102	50 dB	Press the DISPLAY key more than
3	Signal		generator to Antenna	50 dB μ		99.10 MHz				1 sec. (Signal meter indication)
	Meter	2	terminal A.	99.10 MHz		(3 ch.)	Meter	R191	99 dB	After adjustment, press the
			(No modulation)	99 dB μ						DISPLAY key (Frequency indication)
4		1	Connect the DC volumeter				DC	L101	0±5 mV	
- 1	FM		to test point P101	99.10 MHz		99.10 MHz	voltmeter			Repeat the steps 1 and 2 until
	IF	2	and the distortion	60 dB μ		(3 ch.)	Distortion	L102	Minimum	no further adjustment is necessary.
			analyzer to output terminal.				analyzer			
5	Muting		Connect the oscilloscope	99.10 MHz					Appear the	
	level		to the output terminal.	18 dB μ		99.10 MHz	Oscilloscope	R101	signal on the	
				22.5 kHz devi.					oscilloscope.	
	Stereo	]		99.10 MHz	75kHz				Maximum	IF BAND: NORMAL
6	Sepa-	]	Connect the oscilloscope	60 dB μ	devi.	99.10 MHz	Oscilloscope	R201	Separatin	12 P 1 M 1 1 P P O W
	ration		to the output terminal.	Ext. mode	Pilot signal				Maximum	IF BAND:NARROW
	v				7.5kHz devi.			R202	Separation	
			Connect the oscilloscope to	99.10 MHz	57 kHz					
7	RDS			60 dB μ	3% devi. or	99.10 MHz	Oscilloscope	R801	Maximum	
			the test point P801.	Ext. mode	RDS data					
- 1					signal					L

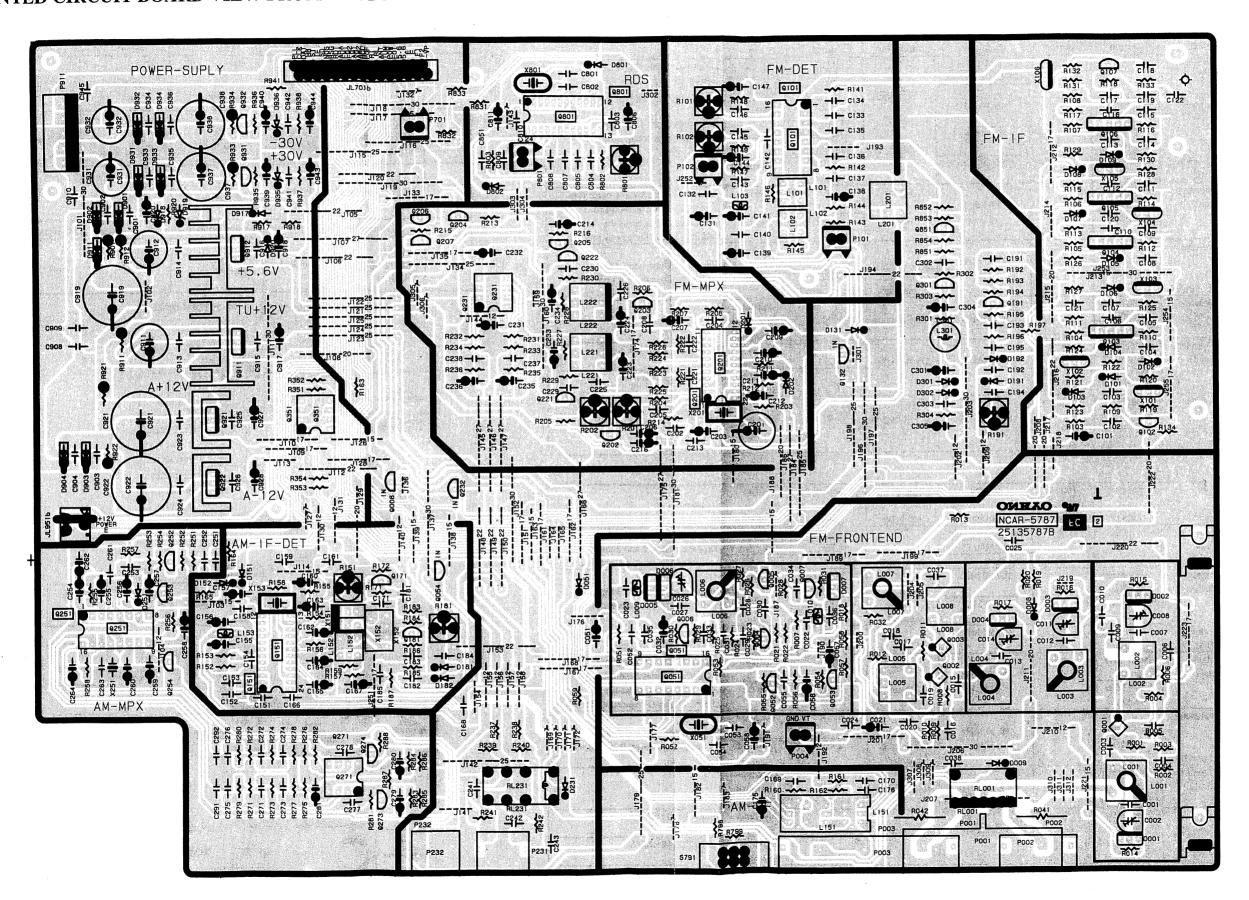
## AM ADJUSTMENT

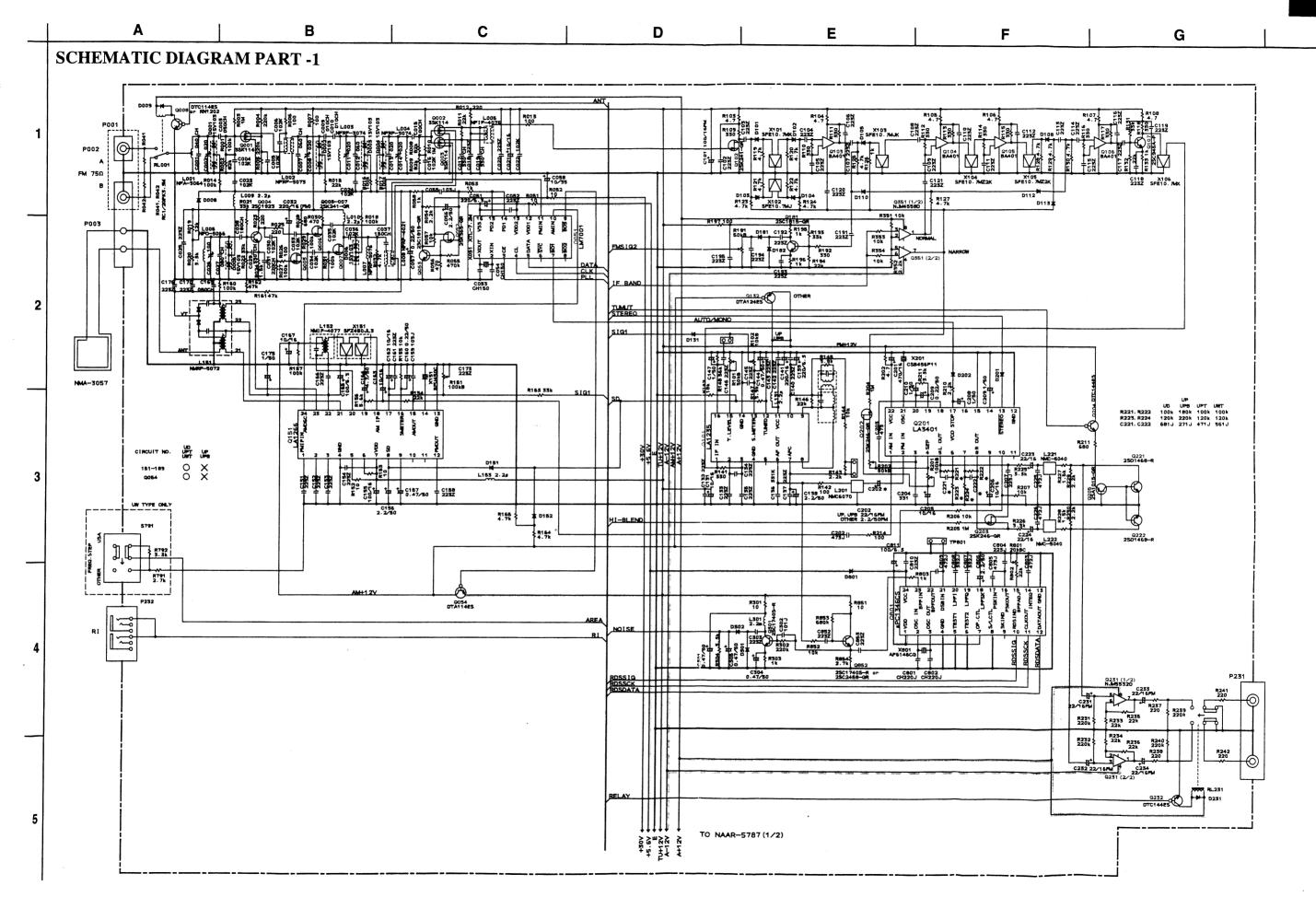
Step	AM SG Tuning output Frequency		Output Indicator	Adjustment point	Adjust for			
1		522kHz <530kHz> (531kHz)	Digital DC voltmeter	OSC coil on RF block L151	2.4±0.1V			
2	603kHz<600kHz> 400Hz 30% mod. 60dB/m	603kHz <600kHz>	AC voltmeter	RF coil on RF block L151	Maximum			
3	990kHz 400Hz 30% mod. 60dB/m	990kHz	AC voltmeter	L152	Maximum			
4	Hold down the DISPLAY button more than 1 second to display "AM Signal".							
5	990kHz 400Hz no mod. 60dB/m	00Hz no mod. 990kHz		R151	60 dB			

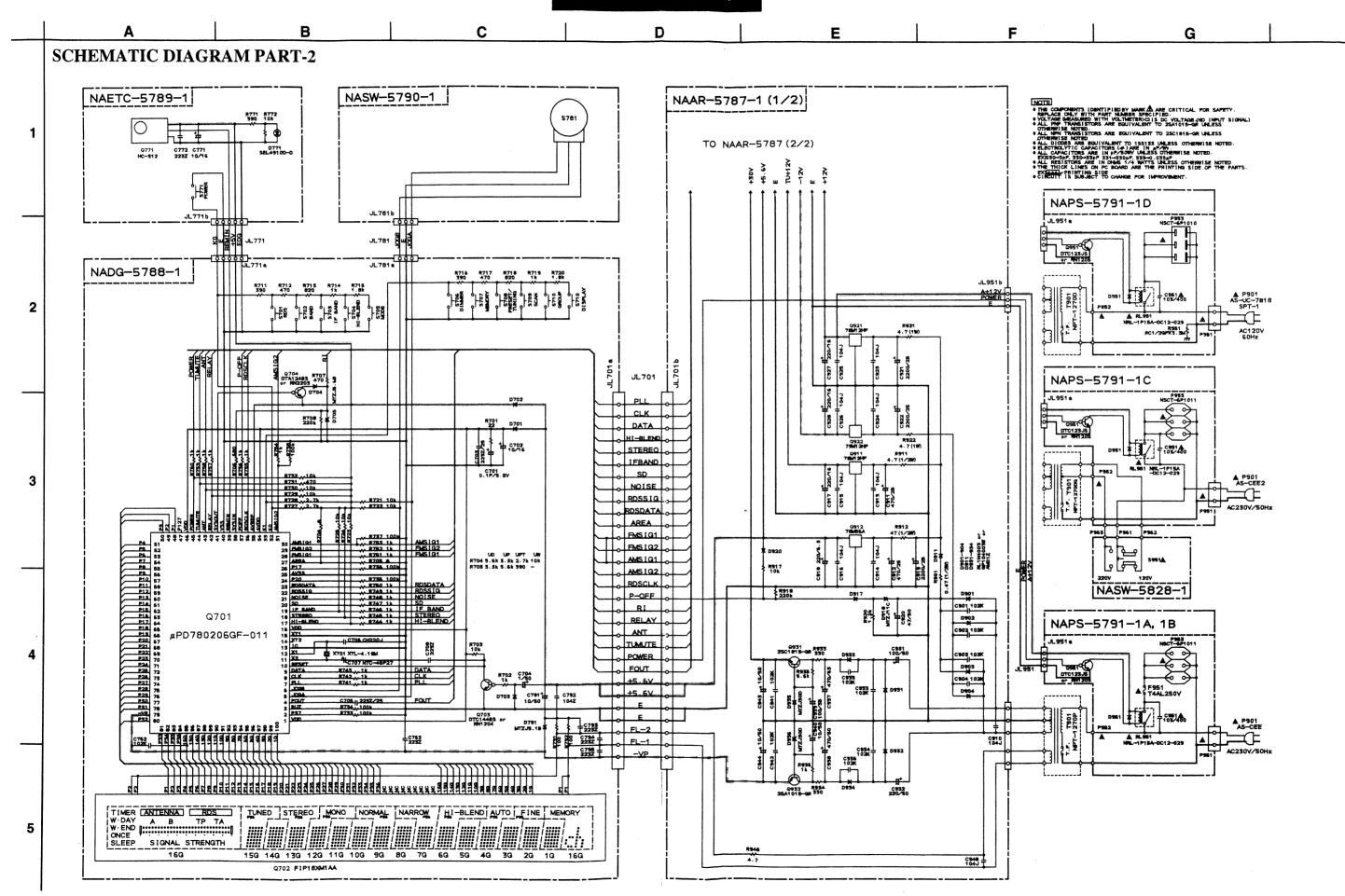
( ): Worldwide model < >:120V model



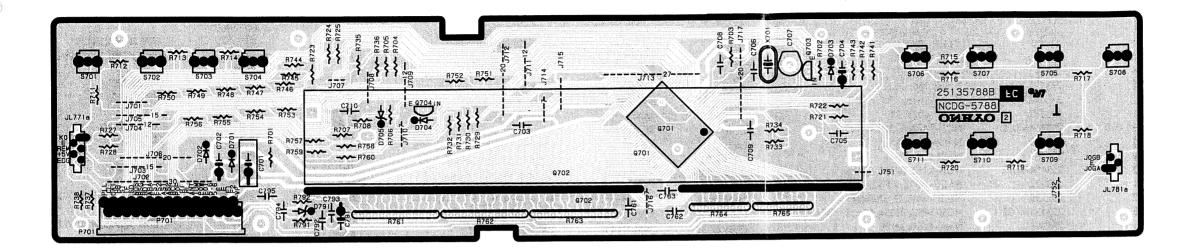
# PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

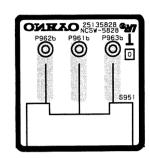






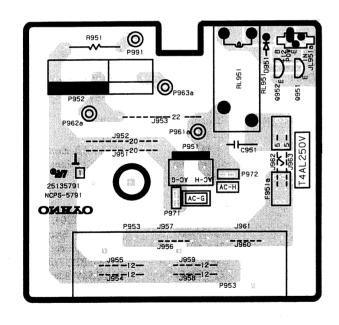
# PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



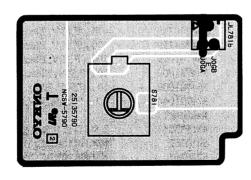


DISPLAY CIRCUIT PC BOARD

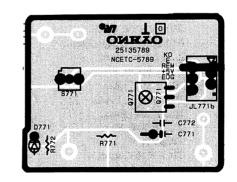
VOLTAGE SELECTOR SWITCH PC BOARD



PRIMARY CIRCUIT PC BOARD



TUNING SWITCH PC BOARD



REMOTE SENSOR PC BOARD

# PRINTED CIRCUIT BOARD-PARTS LIST

		AR-5787-1A/1B/1C/1D)	CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
CIRCUIT NO.		DESCRIPTION	CIRCUIT NO.	Coils and Transfor			Capacitors	O O A T L S III S ON Placeio		Terminals	NPJ-2PDBL184, RI
	ICs	1.17001	L001	233487	NFA-3064, Antenna	C204	374724734	$0.047 \mu \text{ F} \pm 5\%,50\text{ V}$ , Plastic	P232	25045330	NPJ-2PDBL192, Output
Q051	22240090	LM7001 LA1235	L002	233488	NFRF-3073, RF	C205	374723315	330pF±10%,50V, Plastic	P231	25045341	NPJ-2PDBL192, Output
Q101	222680	BA401	L003,L004	233489	NFRF-3074, RF	C207	354741009	10 μ F,16V, Elect.	2004	Plugs	NPLG-2P29
Q103~Q106	22240821		L005	233441	NFIF-4076, IF	C208	374722234	$0.022 \mu \text{ F} \pm 5\%,50\text{V}$ , Plastic	P004	25055038	NPLG-2P29
Q151	22240039	LA1266 <d t="" w=""></d>	L006	233491	NFO-3066, OSC	C209,C210	354780109	1 μ F,50V, Elect.	P101,P102	25055038	NPLG-2P29 NPLG-2P29
Q201	22240252	LA3401	L007	233492A	NFRF-3076, RF	C211	354782299	0.22 μ F,50V, Elect.	P701,P801	25055038	
Q231	222902	NJM5532D-D	L008	233212	NFRF-4021, RF	C212	354780109	$1 \mu$ F,50V, Elect.	Л_951b	25055624	NPLG-3P586
Q351	222465	NJM4558D	L009,L010	233454M022	NCH-1452, 022M, Chock	C216	393141007	10 μ F,16V, Elect.	P911	25055168	NPLG-5P152
Q801	22240679	μ PC1346CS	L101	233459	NFIF-4083, IF	C221,C222	374722715	270pF±10%,50V, Plastic <p></p>		Socket	NOOT 200(57
Q911	222780125NEC	μ PC78M12AHF	L102	233460	NFIF-4084, IF	C221,C222	374724714	470pF±5%,50V, Plastic <t></t>	JL701b	25050862	NSCT-30P657
Q912	222780565JRC	NJM78M56FA	L102	233454M022	NCH-1452, 022M, Chock	C221,C222	374725614	560pF±5%,50V, Plastic <w></w>		Switch	NGC 20112 CV4- 4W
Q921	222780125NEC	μ PC78M12AHF	L151	232172	NMRF-5072, RF <d t="" w=""></d>	C221,C222	374726814	680pF±5%,50V, Plastic <d></d>	S791	25065286	NSS-22112, Slide <w></w>
Q922	222790125NEC	79M12HF	L151	232139	NMIF-4062, IF <d t="" w=""></d>	C223,C224	393142207	22 μ F,16V, Elect.		Antenna terminal	
	Transistors		L152	233454M022	NCH-1452, 022M, Chock <d t="" w=""></d>	C225,C226	374724724	4700pF±5%,50V, Plastic	P002	25060231	NTM-1PD153 <d t="" w=""></d>
Q001~Q003	2212514	3SK114-Y	L201	233383	NMC-6070, MPX	C231,C232	393141017	100 μ F,16V, Elect.	P001	25060202	NTM-2PD124 <p></p>
Q004	2211723	2SC1923-O	L201 L221,L222	233294	NMC-5040, MPX	C233~C236	393142207	$22 \mu$ F,16V, Elect.	P003	25060117	NTM-2PDML051 <d t="" w=""></d>
Q005~Q007	2212195	2SK241-GR		233294	NMC-5040, MPX	C301	354741009	$10 \mu$ F,16V, Elect.		Radiators	
Q008	2213290 or	DTC114ES or	L222	231081	NCH-2129, Chock	C304,C305	354784799	0.47 μ F,50V, Elect.	Q911a,Q912a	27160179	RAD-57
	2214230	RN1202	L301	Resonators		C803,C809	374724724	4700pF±5%,50V, Plastic	Q921a,Q922a	27160220-1	RAD51(B)
Q052	2212445	2SK365-GR	3/053	3010141	XTL-7.2M, Crystal	C804	374722234	$0.022 \mu$ F $\pm$ 5%,50V, Plastic			
Q053,Q191	2213284 or	2SC1740S-R or	X051	3010141	CSB456F11, Ceramic	C805	374724734	$0.047 \mu\text{F} \pm 5\%,50\text{V}$ , Plastic		CUIT PC BOARD	(NADG-5788-1A/1B/1C/1D)
-	2212115	2SC2458-GR	X201	3010203	AF6146CG, Crystal	C806	354780229	$2.2\mu$ F,50V, Elect.	CIRCUIT NO.	PART NO.	DESCRIPTION
Q054	2213510 or	DTA114ES or	X801	Ceramic filters	711 014000, 0.7500.	C807,C808	374723324	3300pF ±5%,50V, Plastic		IC	
~	2214350	RN2202 <d t="" w=""></d>	****	3010041	SFE10.7MX-A	C910	374721044	$0.1 \mu$ F $\pm$ 5%,50V, Plastic	Q701	22241021	MPD780206GF-011
Q102	2212195	2SK241-GR	X101	3010132	SFE10.7MJK-A	C911,C912	393154717	470 μ F,25V, Elect.		Fluorescent tube	
Q107	2210746	2SC945A-P	X102,X103		SFE10.7MZ2K-A	C913 <sup>-</sup> C916	374721044	$0.1 \mu F \pm 5\%,50V$ , Plastic	Q702	212152	FIP18XM1AA
Q132	2212600 or	DTA124ES or	X104,X105	3010130	SFE10.7MX-A, CERA FIL	C917	393142217	220 μ F,16V, Elect.		Transistors	
•	2214350	RN2202 <d t="" w=""></d>	X106	3010041	SFZ-450JL, CERA FIL <d t="" w=""></d>	C918	393122217	$220 \mu$ F,6.3V, Elect.	Q703	221282 or	DTC144ES or
Q202,Q203	2211945	2SK246-GR	X151	3010123	BFU-450C, CERA FIL <d t="" w=""></d>	C919	393152227	2200 μ F,25V, Elect.	Q703or	2213560	RN1204
Q204,Q206	221282 or	DTC144ES or	X153	3010076	Bru-430C, CERATIE COTTITI	C920	354784709	$47 \mu$ F,50V, Elect.	Q704	2212600 or	DTA124ES or
<b>L</b>	2213560	RN1204		Capacitors	NTC-2P17, Trimmer	C921,C922	393152227	2200 μ F,25V, Elect.	Q704or	2213580	RN2203
Q205	2213354 or	2SA933S-R or	C002,C008	3060020	NTC-2P17, Trimmer	C923~C926	374721044	$0.1 \mu \text{ F} \pm 5\%,50 \text{V}$ , Plastic	•	Diodes	
Quus	2212125	2SA1048-GR	C011,C014	3060020	$10 \mu$ F,16V, Elect.	C927,C928	393142217	220 μ F,16V, Elect.	D701~D704	223205 or	1SS270A or
Q207	2213510 or	DTA114ES or	C021	354741009	NTC-10P15, Timmer	C931	354781019	100 μ F,50V, Elect.		223163	1SS133
<b>Q2</b> 0.	2214350	RN2202	C026	3060017	220 $\mu$ F,16V, Elect.	C932	354782219	220 μ F,50V, Elect.	D705	224470562	MTZJ5.6B, Zener
Q221,Q222	2212794	2SD1468-R	C032	393142217	220 $\mu$ F,6.3V, Elect.	C937	354774719	470 μ F,63V, Elect.	D791	224471203	MTZJ12C, Zener
Q232	2213290 or	DTC114ES or	C051	354722219	$0.01 \mu \text{ F} \pm 5\%,50\text{V}, \text{ Plastic}$	C938	354784719	470 μ F,50V, Elect.		Resonator	
Q-5-	2214230	RN1202	C055	374721034	,	C939	354761019	100 μ F,35 V, Elect.	X701	3010224	XTL-4.19M, Crystal
Q301,Q851	2213284 or	2SC1740S-R or	C056	354780229	2.2 μ F,50V, Elect.	C940,C943	354781009	10 μ F,50V, Elect.		Capacitors	
Q501,Q051	2212115	2SC2458-GR	C057	354782299	0.22 μ F,50V, Elect.	C940,C943	354781009	10 μ F,50V, Elect.	C701	3000076	EECS5R5T104, Super
Q931	2211255	2SC1815-GR	C058	354761009	10 μ F,35V, Elect.	C945	374721044	$0.1 \mu$ F±5%,50V, Plastic	C702	354741009	10 μ F,16V, Elect.
Q932	2211455	2SA1015-GR	C101	393141017	100 μ F,16V, Elect.	C943	Resistors		C704	354780109	1 μ F,50V, Elect.
Q752	Diodes		C131	354741009	10 μ F,16V, Elect.	DO41 DO42	431533355	$3.3M \Omega \pm 10\%$ , 1/2W,Solid <d></d>	C707	3060031	NTC-45P27, Trimmer
D001~D007	223154	1SV103	C138	354780229	$2.2 \mu$ F,50V, Elect.	R041,R042	5210262	N06HR10KBC, Trimming	C791	354781009	10 μ F,50V, Elect.
D008,D009	223205 or	1SS270A or	C139	354722219	220 μ F,6.3V, Elect.	R101,R102	5210263	N06HR20KBC, Trimming <d t="" w=""></d>	0.71	Resistors	,
D051	223163	1SS133	C141	393142217	220 μ F,16V, Elect.	R151,R801	5210265	N06HR50KBC, Trimming	R764	49163103408	10K*8, 1/10W, Network
D1017D109	223205 or	1SS270A or	C144	354784799	$0.47 \mu \text{ F,50V, Elect.}$	R191,R202	5210266	N06HR100KBC, Trimming	R765	49163103408	10K*8, 1/10W, Network
D191,D192	223163	1SS133	C147	354780109	$1 \mu$ F,50V, Elect.	R201	453534794	$0.47\Omega \pm 5\%$ , 1/2W, Metal	1705	Switches	2000 2, 2, 2, 200
D201,D202	223205 or	1SS270A or	C155	393141017	100 μ F,16V, Elect. <d t="" w=""></d>	R901	453530474	$4.7\Omega \pm 5\%$ , 1/2W, Metal	S701	25035652	NPS-111-S604 <d t="" w=""></d>
D201,D202	223163	1SS133	C156	354780229	$2.2 \mu$ F,50V, Elect. <d t="" w=""></d>	R911	443524704	$47 \Omega \pm 5\%$ , 1/2W, Metal oxide film	S702 <sup>-</sup> S711	25035652	NPS-111-S604
D301,D302	223205 or	1SS270A or	C157	354784799	0.47 $\mu$ F,50V, Elect. <d t="" w=""></d>	R912	453630474	$4.7\Omega \pm 5\%$ , 1W, Metal	3702 3711	Sockets	1.10 111 000
D801,D302	223163	1SS133	C159	374721034	$0.01 \mu \text{ F} \pm 5\%,50\text{V}, \text{ Plastic} < \text{D/W/T} >$	R921,R922		4.742 25 70, 1 11,11000	ЛL701a	25050894	NSCT-30P689
D901~D904	22380260,	RL1N4003,	C160	354782299	$0.22 \mu$ F,50V, Elect. <d t="" w=""></d>		Realies	NRL-1P0.1A-DC12-050, RELAY	JL771a	25051089	NSCT-5P876
	22380200, 22380035 or	GP104003E or	C162,C163	354741009	$10 \mu$ F,16V, Elect. <d t="" w=""></d>	RL001	25065356	NRL-2P1A-DC12-078, RELAY		25051087	NSCT-3P874
D911	22380046	AM01Z	C164	354780479	$4.7 \mu$ F,50V, Elect. <d t="" w=""></d>	RL231	25065469 Shield asso	MIND-EL TH-DCTE-070, RESERVE	ЛL781a	Holder	
D931~D934		1SS270A or	C165	354721019	$100 \mu$ F,6.3V, Elect. <d t="" w=""></d>		Shield case	Front and center	07026		FL tube
D917,D920	223205 or	1SS133	C167	354741009	$10 \mu$ F,16V, Elect. <d t="" w=""></d>		27150357	Front end, center	Q702a	27190981	1 1 1100
D010	223163	MTZJ11C, Zener	C175	354780109	1 $\mu$ F,50V, Elect. <d t="" w=""></d>		27301031-1	Front end			
D918	224471103	MTZJ30D, Zener	C201	393144717	470 μ F,16V, Elect.		27301033-1	Front end			
D935,D936	224473004	1SS270A or	C202	374724734	$0.047 \mu\text{F} \pm 5\%,50\text{V}$ , Plastic <d t="" w=""></d>		Screws	an (CNI/DC) Bee head			
D131,D151	223205 or	1SS133 <d t="" w=""></d>	C203	393142207	22 μ F,16V, Elect. <p></p>	Q911b,Q912b	82143006	3P+6FN(BC), Pan head			
D152	223163	1001JJ  U   1001	C203	393180227	$2.2 \mu$ F,50V, Elect. <d t="" w=""></d>	Q921b,Q922b	82143006	3P+6FN(BC), Pan head			

# REMOTE SENSOR PC BOARD (NAETC-5789-1A/1B/1C/1D) CIRCUIT NO. PART NO. DESCRIPTION

PART NO.	DESCRIPTION
241302	PIC-12(43TH2, Remote sensor
225291D	SEL4910D-D, LED
354741009	10 μ F,16V, Elect. capacitor
25035652	NPS-111-S6(H, Push switch
25055626	NPLG-5P588, Plug
	241302 225291D 354741009 25035652

## TUNING SWITCH PC BOARD (NASW-5790-1A/1B/1C/1D)

10.1.1.00		·
CIRCUIT NO.	PART NO.	DESCRIPTION
S781	25065518	RE161PVB25F, Rolary encod
JL781b	25055624	NPLG-3P586, Plug

## VOLTAGE SELECTOR SWITCH PC BOARD (NAPS-5828-1C)

A OFT WOL OF	DEC LONG BULL	
CIRCUIT NO.	PART NO.	DESCRIPTION
\$951	25065437	! NSS-22157P, Slide switch <

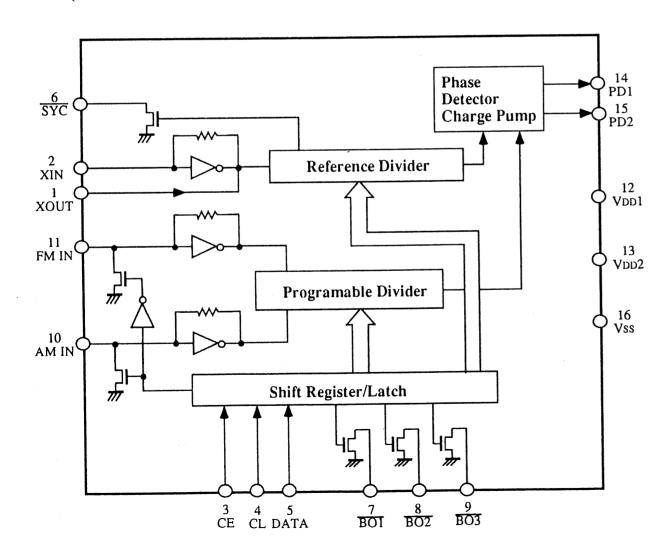
## PRIMARY CIRCUIT PC BOARD (NAPS-5791-1A/1B/1C/ID) CIRCUIT NO. PART NO. DESCRIPTION

CIRCUIT NO.	PART NO.	DESCRIPTION
0951	2213640 or	DTC123JS or
•	2214660	RN1205, Transistor
D951	223205 or	1SS270A or
	223163	1SS133, Diode
C951	3500191	
RL951	25065248	∧ NRL-1P15A-DC12-29, Relay
F951a	25050065	∴ YSH403T, Fuse holder <p t=""></p>
JL951a	25051087	NSCT-3P874, Socket
P951	25055675	△ NPLG-2P631, Plug
P952	25055167	MPLG-4P151, Plug <p d="" t=""></p>
P952	25055170	
P953	25051221	⚠ NSCT-6P1011, AC outlet <p t=""></p>
P953	25051220	
R951	431533355	$\triangle$ 3.3M $\Omega$ ± 10%, 1/2W, Solid resistor < D:

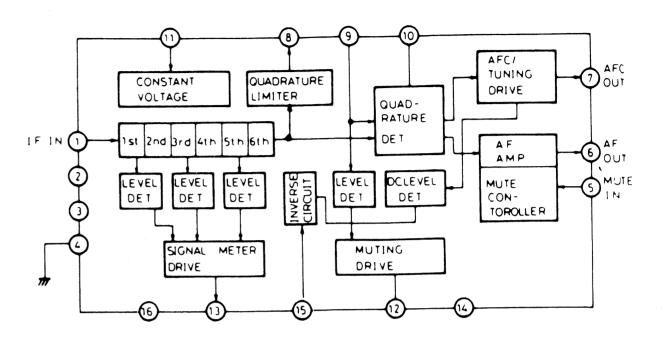
NOTE: THE COMPONENTS INENTIFIED BY MARK

ARE CRITICAL FOR RISK OF FIRE AND
ELECTRIC SHOCK. REPLACE ONLY WITH
PART NUMBER SPECIFIED.

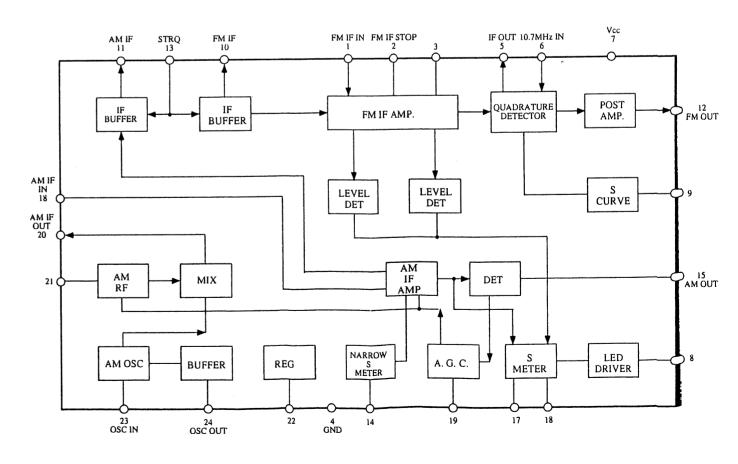
# IC BLOCK DIAGRAMS AND DESCRIPTIONS LM7001(PLL SYNTHESIZER AND CONTROLLER)



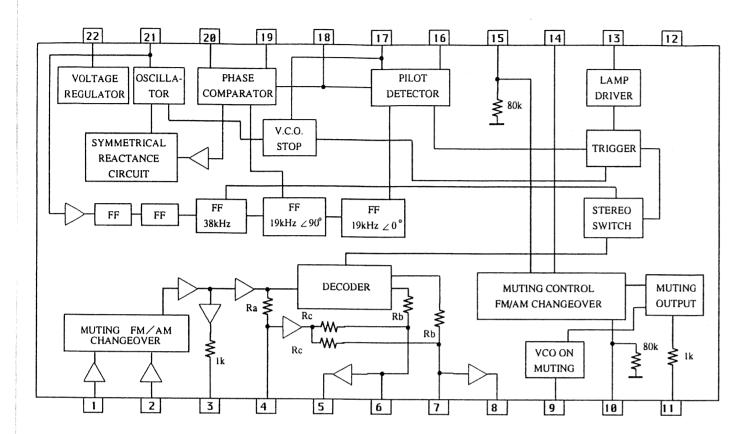
## LA1235(FM IF AND AM RADIO SYSTEM)



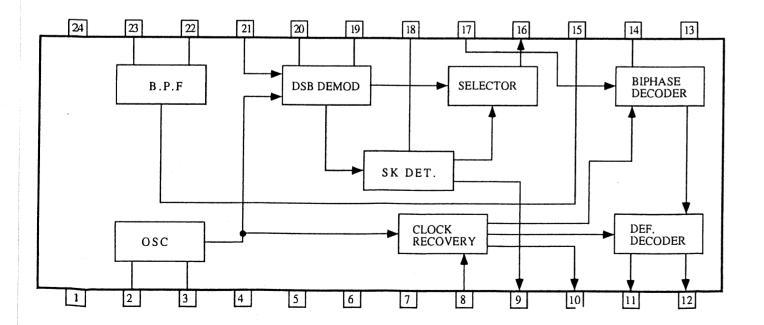
## LA1266(FM IF AND AM RADIO SYSTEM)



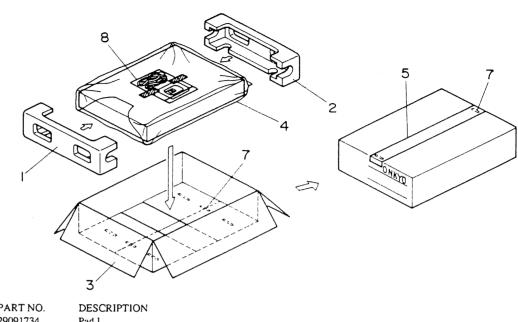
## LA3401(FM STEREO DECODER)



## μPC 1346CS(RDS DECODER)



## **PACKIG VIEW**



			3	
	REF.NO.	PART NO.	DESCRIPTION	
	1	29091734	Pad L	
	2	29091735	Pad R	
	3	29053020	Carlon box <d t="" w=""></d>	
	3	29053021	Carton box <s></s>	
	3	29053022	Carton box <g></g>	
	3	29053066	Carton box <p></p>	
	4	29100097-1AY	Poly bag	
	5	29110071	PP tape	
	7	282301	Staples	
	8	Accessary bag ass		
		292112	FM antenna	
		29361970	Label UPC <bd></bd>	
29361971		29361971	Label UPC <gd></gd>	
2010098A		2010098A	Connection cord	
2010200		2010200	Remote control cord	
232140		232140	NMA-3057, AM loop antenna <d t="" w=""></d>	
		24140315	RC-315T, Remote control	
		25055018	CV-K-1, Conversion plug <w></w>	NOTE: <d>: 120V model only</d>
		25065462	YAE21-0237, FM adaptor <d t="" w=""></d>	<p>: 230V model only</p>
		29342325	Instruction manual E	<pb>: U.K model only</pb>
		29342326	Instruction manual U6 <p></p>	<w>: Wolrdwide model only</w>
		29342328	Instruction manual U3 <t w=""></t>	<t>:Taiwanease model only</t>
		29358002K	Service station list <d></d>	<b>: Black model only</b>
		29365019B	Warranty card <d></d>	<s>: Silver model only</s>
		3010054	UM-3, Battery	<g>: Golden model only</g>

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